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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,609	02/27/2004	Timothy E. Snodgrass	03CR254/KE	9039
7590 Nathan O. Jensen ROCKWELL COLLINS, INC. 400 Collins Rd. NE Cedar Rapids, IA 52498			EXAMINER VERDI, KIMBLEANN C	
			ART UNIT 2194	PAPER NUMBER
			MAIL DATE 01/02/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/789,609

Applicant(s)

SNODGRASS, TIMOTHY E.

Examiner

KimbleAnn Verdi

Art Unit

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the Amendment filed on October 16, 2007. Claims 1-20 are pending in the current application. All previously outstanding objections and rejections to the Applicant's disclosure and claims not contained in this Action have been respectfully withdrawn by the Examiner hereto.

Response to Amendment

1. Amendment to the specification and claims overcomes the previous objection to the specification and claims.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 10, and 15 have been considered but are moot in view of the new ground(s) of rejection.

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

The oath or declaration should be in compliance with the rules in place at the time of filing of the application.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

Art Unit: 2194

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 10 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 10, and 15 the recitation of "no middleware is used" contains a negative limitation which does not have basis in the original disclosure. Thorough review of the specification by the Examiner did not result in finding of the subject matter properly disclosed in the specification.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over "CORBA™ Delays in a Software-Defined Radio", by Bertrand et al. (hereinafter Bertrand) in view of "Implementation of a WNW within the JTRS Operating Environment Using Networking APIs", by Anderson et al. (hereinafter Anderson) and in further view of "Context-sensitive object request broker for ubiquitous computing environments" by Yau et al. (hereinafter Yau).

Art Unit: 2194

8. As to claim 1, Bertrand teaches the invention substantially as claimed including an apparatus that implements services for a waveform application, the apparatus comprising:

an object request broker (CORBA object request broker, page 153, left col., line 16) that marshals data from the waveform application for communication (page 152, Fig. 1 and page 155, left col., lines 58-61), wherein at least a portion of the object request broker is implemented in hardware (Fig. 2, each processor implementing some of the waveform software, page 152, right col., lines 13-14); and

Bertrand does not explicitly teach an object request broker interface that communicates the marshaled data using a memory pool;

and no middleware is used.

However Anderson teaches an object request broker interface (commercial Object Request Brokers (ORBs), Fig. 6) that communicates the marshaled data using a memory pool (used pointers to shared memory to address transport delays, transfer methods supported by ORBs, page 975, right col., lines, 36-48, upgrade to shared memory approach used in Rockwell Collins Link 16 port to the JTRS SCA under JTRS Step 2b, left col., lines 29-31).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the ORB communication mechanism of Bertrand with the teachings of shared memory from Anderson because this feature would have provided a mechanism to address the transport delays of the CORBA™ call copying of data (page 975, right col., lines 36-42 of Anderson).

In addition Yau teaches no middleware is used (page 37, right col., lines 45-55, page 38, Figure 2, and Table 1).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have further modified the ORB of Bertrand as modified by Anderson with the teachings of R-ORB from Yau because this feature would have further provided a mechanism for implementing an ORB based on a software-hardware co-design approach to achieving both reconfigurability and performance desired in ubicomp environments (page 37, right col., lines 26-29 of Yau) utilizing Field Programmable Gate Arrays to design and implement the hardware part of the design (page 37, right col., lines 29-31 of Yau).

9. As to claim 2, Bertrand teaches the apparatus of claim 1, wherein the apparatus is an application specific integrated circuit (ASIC) (e.g. processor, Fig. 2, each processor implementing some of the waveform software, page 152, right col., lines 13-14).

10. As to claim 3, Bertrand as modified teaches the apparatus of claim 1, wherein the apparatus is a field programmable gate array (FPGA) (page 974, right col., lines 29-31 of Anderson).

11. As to claim 4, Bertrand teaches the apparatus of claim 1, wherein the object request broker interface comprise a pluggable protocol interface (e.g. ease of technology insertion, CORBA™ hides details of the hardware architecture, left col., lines 30-44).

Art Unit: 2194

12. As to claim 5, Bertrand as modified teaches the apparatus of claim 1, wherein the object request broker interface comprises a custom interface (part of SCA OE Framework, specified interface for CORBA™, page 972, left col., line 46, right col., lines 1-5 of Anderson).

13. As to claim 6, Bertrand teaches the apparatus of claim 1, wherein the object request broker is a common object request broker architecture broker (page 153, left col., line 16).

14. As to claim 7, Bertrand as modified teaches the apparatus of claim 1, wherein the memory pool comprises a multi-port memory pool (shared RAM Card with 2 ports, Fig. 6, of Anderson).

15. As to claim 8, Bertrand as modified teaches the apparatus of claim 1, wherein the at least a portion of the object request broker that is implemented in hardware comprises logic and data formatting functions (e.g. CORBA™ call copying of data, page 975, right col., line 36 of Anderson) that are determined to consume excessive processor throughput (e.g. transport delays) for a software application (the CORBA™ call copying of data and associated transport delays had to be addressed because the WNE protocol is a TDMA schema with tight real-time requirements, page 975, right col., lines 36-39 of Anderson).

16. As to claim 9, Bertrand teaches the apparatus of claim 1, wherein the at least a portion of the object request broker interface that is implemented in hardware comprises an operating system protocol stack (software stack, Fig. 1, Fig. 4).

Art Unit: 2194

17. As to claim 10, this claim is rejected for the same reasons as claim 1, see the rejection to claim 1 above.

18. As to claim 11, this claim is rejected for the same reasons as claim 8, see the rejection to claim 8 above.

19. As to claims 12, this claim is rejected for the same reasons as claim 9, see the rejection to claim 9 above.

20. As to claims 13 and 14, these claims are rejected for the same reasons as claims 2 and 3 respectively, see the rejections to claims 2 and 3 above.

21. As to claim 15, Bertrand teaches the invention substantially as claimed including a system for a joint tactical radio system (JTRS) compliant device that provides communication at low power requirements, the system comprising:

a hardware-implemented (Fig. 2, each processor implementing some of the waveform software, page 152, right col., lines 13-14) object request broker (ORB) (CORBA™ object request broker, page 153, left col., line 16) that marshals data from a waveform application (page 152, Fig. 1 and page 155, left col., lines 58-61);

a pluggable protocol interface (e.g. ease of technology insertion, CORBA™ hides details of the hardware architecture, left col., lines 30-44) that communicates the marshaled data from the hardware-implemented ORB (CORBA™ middleware, can perform a data format translation, converting data to a format appropriate to the receiving, left col., lines 5-7), wherein at least a portion of the pluggable protocol interface is implemented in hardware (Fig. 2, each processor implementing some of the waveform software, page 152, right col., lines 13-14); and

Bertrand does not explicitly teach a memory pool that communicates data from the pluggable protocol interface directly and without transport overhead; and no middleware is used.

However Anderson teaches a memory pool (e.g. shared memory) that communicates data from the pluggable protocol interface directly and without transport overhead (CORBA™ call copying of data used pointers to shared memory to address transport delays, transfer methods supported by ORBs, page 975, right col., lines, 36-48, upgrade to shared memory approach used in Rockwell Collins Link 16 port to the JTRS SCA under JTRS Step 2b, left col., lines 29-31).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the ORB communication mechanism of Bertrand with the teachings of shared memory from Anderson because this feature would have provided a mechanism to address the transport delays of the CORBA™ call copying of data (page 975, right col., lines 36-42 of Anderson).

In addition Yau teaches no middleware is used (page 37, right col., lines 45-55, page 38, Figure 2, and Table 1).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have further modified the ORB of Bertrand as modified by Anderson with the teachings of R-ORB from Yau because this feature would have further provided a mechanism for implementing an ORB based on a software-hardware co-design approach to achieving both reconfigurability and performance desired in ubicomp environments (page 37, right col., lines 26-29 of Yau) utilizing Field

Programmable Gate Arrays to design and implement the hardware part of the design (page 37, right col., lines 29-31 of Yau).

22. As to claim 16, this claim is rejected for the same reasons as claim 8, see the rejection to claim 8 above.

23. As to claims 17 and 18, these claims are rejected for the same reasons as claims 2 and 3 respectively, see the rejections to claims 2 and 3 above.

24. As to claim 19, Bertrand as modified teaches the system of claim 15, wherein the JTRS compliant device is in an unmanned craft (radio prototype tested in the field with Vehicular, right col., lines 11-12 of Anderson).

25. As to claim 20, Bertrand as modified teaches the system of claim 15, wherein the JTRS compliant device is a battery powered radio (single channel JTRS wideband radio prototype, right col., line 14 of Anderson).

Conclusion

26. The prior art made of record on the accompanying PTO-892 and not relied upon, is considered pertinent to applicant's disclosure.

27. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2194


extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KimbleAnn Verdi whose telephone number is (571) 270-1654. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on (571) 272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 28, 2007
KV


WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER